2006 Compensatory Mitigation Monitoring Report

L.E. CARPENTER & COMPANY

170 North Main Street
Block 301, Lot 1 and Block 801, Lot 3
Borough of Wharton
Morris County, New Jersey

NJDEP File #1439-04-0001.1

Prepared for:

RMT INC.

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Grand Rapids, MI 49546

Prepared by:

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JFNew Project #040229

319472

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INTRODUCTION

L.E. Carpenter & Company (LEC) implemented a Remedial Action Work Plan (RAWP) for the impacted portion of their ± 14.6-acre site (approximately 4.7 acres of disturbed area) located at 170 North Main Street, Borough of Wharton, Morris County, New Jersey (Figure 1). The site comprises Block 301, Lot 1 and Block 703, Lot 30 on the Borough of Wharton tax map. The project area is located in the USGS Dover, New Jersey quadrangle with center state plane coordinates of N 754326.5 E 470891.83 (NAD 1983) (Figure 2). A 2002 aerial photograph of the project site is also included (Figure 3).

Due to the parcel's previous utilization for mining and forging throughout the 1700's and 1800's, and vinyl manufacturing from 1943 to 1987, contaminated soils and groundwater were identified on the site. RMT, Inc. (RMT), on behalf of LEC, worked with the U.S. Environmental Protection Agency (USEPA) and the New Jersey Department of Environmental Protection (NJDEP) to implement the RAWP for those impacted areas of the property.

As part of the RAWP, several "Hot Spots" (areas exhibiting either inorganic or organic contaminant concentrations in soil in excess of the 1994 Record of Decision (ROD) cleanup criteria) were identified across the site for removal. Several areas identified for contaminant removal overlapped with jurisdictional wetlands on site. A total of 0.337 acre of jurisdictional wetlands was temporarily impacted as a result of site remediation activities (Figure 4). This acreage consisted of a 0.003 acre and 0.009 acre lobe of forested/scrub-shrub wetland on site, 0.286 acre of forested/scrub-shrub and emergent marsh wetland to the east on the Wharton Enterprise property, and 0.039 acre of the Air Products open-water drainage channel relocation to the northeast. Due to the fact that project activities and wetlands extend off site onto adjacent properties, the project area or site referenced in this plan includes the LEC parcel, several acres of the Wharton Enterprises parcel to the east, and the Air Products drainage channel to the northeast.

Upon completion of cleanup activities, the entire 0.337 acre of wetland disturbance was restored and enhanced as more diverse emergent wetland communities. All temporary wetland impacts were restored and mitigated for at their current locations. A Wetland Mitigation Construction Final Report, dated August 28, 2005, was submitted to the NJDEP upon completion of restoration activities.

The main source of hydrology for the restored wetland is a direct surface water flow from the Rockaway River. The wetland area was restored to pre-cleanup grades. The intention was to restore and enhance the pre-existing wetland so that there is no-net loss of wetlands as a result of the clean-up work completed by LEC.

The primary means through which wetland vegetation will be established in the mitigation area is through planting native seed and bare root stock trees, as well as natural colonization from the adjacent wetland areas. For a list of planted species within the mitigation area and transition zone, see Appendix A.

MONITORING

Annual monitoring of the mitigation area is proposed for five years, unless it is apparent the wetland has been successfully established sooner, upon which case the permittee will propose elimination of any subsequent reports in writing to the NJDEP. Only upon written concurrence from the NJDEP will any reporting requirements be eliminated.

LEC will submit annual reports to the NJDEP by December 31 of each monitoring year in accordance with the requirements outlined in the NJDEP Mitigation Project Monitoring Reports Checklist for Completeness. The monitoring reports will, at a minimum, include the following:

1. Photographs of the wetland mitigation areas.
2. Assessment of vegetative communities and evaluation of whether a dominance of wetland species exists (according to federal wetland indicator status of species identified).
3. Wildlife utilization evaluation.
4. Hydrology evaluation.
5. Soil evaluation.
6. Sediment loading evaluation.
7. Evaluation of sideslope and transition area conditions. Evaluation of overall progress toward successful achievement of wetland creation as designed, per each of the performance standards dictated for the project. Perform a comparative assessment between existing conditions and the performance standards.

This document will serve as the second annual monitoring report.

METHODS

A spring site visit was completed on May 30, 2006 followed by a thorough review of the mitigation site on October 27, 2006. During the May visit, conditions were sunny and 75° F while conditions were partly cloudy and 50° F during the October site visit. A site visit was also conducted in May 2006 to chemically treat the invasive species of purple loosestrife (*Lythrum salicaria*) and reed canary grass (*Phalaris arundinacea*). The wetland was walked using the random meander method. All plant species encountered during the walk-through were recorded on inventory data sheets until no new plant species were observed (Appendix B). Plant names were used as listed in Gleason and Cronquist (1991).

Three permanent transect were set up in order to measure percent cover of vegetation in the wetland (Figure 4). Several 1-m^2 plots were laid along the transect in order to measure the vegetative cover. A percent cover value was assigned to each species found in the plots. Total vegetative cover was calculated by averaging the vegetative cover from each plot along the transect (Appendix B).

Information on hydrology was collected using evidence provided by soil pits. Permanent reference points were established at the beginning of each transect so that water levels can be

recorded in the same location from year-to-year. The site was also inspected for problems such as erosion, sedimentation, and water quality issues. Signs of wildlife use were also recorded during the walk-through. Finally, reference points were established from which to take photographs.

VEGETATIVE COMMUNITY

The data from the plots was used to describe the vegetative cover. Of the total wetland and transition areas, an average of 94% was vegetated and the remaining 6% was bare soil. The total vegetative cover has increased by at least 13% in each area as indicated in Tables 1-3. The number and percent of native wetland indicator species has also increased from 2005. Dominant species in the emergent zone include panic grass (*Panicum dichotomiflorum*) (28% relative cover), barnyard grass (*Echinochloa crusgalli*) (19% relative cover), and common plantain (*Plantago major*) (8% relative cover). Dominant species in the forested/scrub-shrub zone include common plantain (22% relative cover), redtop (*Agrostis gigantea*) (21% relative cover), and barnyard grass (15% relative cover). Dominant species in the transition zone include orchard grass (*Dactylis glomerata*) (56% relative cover).

Table 1. A summary of species diversity in the emergent zone

Year	Total # Species	# Native Wetland Indicator Species	# Native Species	Percent Vegetative Cover
2005	49	19 (39%)	29 (59%)	77%
2006	46	24 (52%)	31 (67%)	90%

Table 2. A summary of species diversity in the forested/scrub-shrub zone

Year	Total # Species	# Native Wetland Indicator Species	# Native Species	Percent Vegetative Cover
2005	51	23 (45%)	34 (67%)	82%
2006	53	29 (55%)	41 (77%)	98%

Table 3. A summary of species diversity in the transition zone

Year	Total # Species	# Native Wetland Indicator Species	# Native Species	Percent Vegetative Cover
2005	37	7 (19%)	19 (51%)	62%
2006	49	10 (31%)	28 (57%)	94%

The following invasive species were observed within the mitigation wetlands during the 2006 monitoring visit: reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), and giant reed (*Phragmites australis*). These species were located in a strip approximately 10' wide around the north and east border of the emergent zone. These species will continue to be selectively treated using wetland-approved herbicides. Annual treatments will be performed twice each year through September 2009, or until all invasive populations have been effectively controlled.

Most of the planted bareroot trees and shrubs have perished. Late season installation (June 28, 2005), severe drought conditions throughout the 2005 growing season, and deer predation were likely contributors to the death of many of the installed trees. A replant of 250 bareroot trees is recommended to encourage sufficient coverage to meet mitigation requirements. It is recommended that this supplemental planting take place during the spring of 2007 (April or May).

Much of the vegetation encountered in the wetland zones is comprised of upland weedy species (non-invasive). While overall coverage of native wetland species has increased and some delay between seed installation and native vegetation establishment is anticipated, the absence of most seeded species at the end of the first growing season could be of future concern regarding the successful long-term development of the wetland communities. Drought conditions in 2005 may have adversely affected the native seed, resulting in lower than expected germination rates. Supplemental seeding during spring 2007 tree planting is recommended to further enhance the wetland mitigation area's establishment. Future monitoring visits will include further assessment of the development of native wetland vegetation at the site.

Six tree species were found in the mitigation area including red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), silky dogwood (*Cornus amomum*), green ash (*Fraxinus pennsylvanica*), black walnut (*Juglans nigra*), and pussy willow (*Salix discolor*). There were originally 375 tree/shrub species planted in the mitigation area. During the site visit, a count was made of all the surviving tree/shrub seedlings and 32 were found to be alive. This results in a 9% survival rate of planted trees and shrubs. Species specific survival numbers are present on the data sheets (Appendix B).

MAINTENANCE

Invasive or noxious vegetation can oftentimes prevent or hinder the successful establishment of native species in a wetland mitigation area. For this reason, a routine wetland maintenance program is being implemented at the LEC project site. This program includes semi-annual site visits to assess and treat (if necessary) any invasive species found on the property. Based on knowledge of the site and adjacent communities, chemical applications have been selected as the most effective maintenance tool for control of invasive species. Invasive species on the site were chemically treated on the site in May 2006.

Any potential browsing damage by herbivores will be noted and addressed during routine maintenance site visits. Should the need arise, deer or goose fencing will be erected around the seeded areas to promote growth and restrict grazing or browsing.

Subsequent to permit issuance and after the restored wetland areas had been planted, several federal agency personnel raised a concern over the use of barnyard grass (*Echinochloa crusgalli*) in the wetland restoration seed mix. Due to the fact that several respected botanical sources disagree on the status of barnyard grass as a native versus non-native species, it was decided that barnyard grass populations on the project site will be monitored. If at any time it is determined that barnyard grass is having a detrimental effect on the mitigation area or prohibiting the

establishment of other native species, it will be effectively controlled during the semi-annual maintenance site inspections. At this time, barnyard grass does not appear to be a long-term concern.

HYDROLOGY AND WATER QUALITY

Site conditions in 2006 were wetter than in 2005. Hydrology ranged from moist soil to pockets of inundation up to 3" deep. At the eastern end of the emergent zone transect, a soil pit was dug to inspect hydrology. During the October site visit, the soil was saturated in this region at the surface. At the eastern end of the forested zone transect, the soil was inundated up to 0.5" above the surface. The western end of both the forested and emergent zones was drier with saturation 12-16" below the soil surface.

WILDLIFE HABITAT

Evidence of wildlife use was present in the mitigation wetland. The presence of white-tailed deer and Canada Goose continue to present a problem with the establishment of the mitigation vegetation. Herbivory by these species may be one of the contributing factors to the initially slow development. As the mitigation site progresses and the wetland vegetation becomes dominant, it is expected that the wildlife observations will continue to increase, and the desired goal of creating wildlife habitat within the mitigation area will be achieved.

Table 4. Comprehensive list of wildlife observations in the mitigation wetland

SCIENTIFIC NAME	COMMON NAME
BIRDS	
Cyanocitta cristata	Blue jay
Buteo jamaicensis	Red-tailed hawk
Branta canadensis	Canada goose*
Zenaida macroura	Mourning dove*
Colaptes auratus	Northern flicker
AMPHIBIANS	
Rana clamitans	Green frog
MAMMALS	
Odocoileus virginianus	White-tailed deer*
INSECTS	
Papilio glaucus	Tiger swallowtail*

*Observed in 2006

SOILS

During the 2006 site visit, soil characteristics and textures were not specifically examined due to the fact that this had previously been done in June 2005. Results of the soil profile review were presented in the Wetland Mitigation Construction Final Report, dated August 28, 2005, and are again presented below.

Table 5. Soil profile review

	Soil Depth	Munsell Soil Color	Soil Texture
Boring 1 (40.54.15.00748N 74.34.31.41719W)	0-10” 10-20”	10YR 4/3 10YR 3/3	Loam Loam
Boring 2 (40.54.14.42438N 74.34.31.14259W)	0-13” 13-20”	10YR 4/2 10YR 3/2	Loamy clay Loamy clay
Boring 3 (40.54.13.75148N 74.34.31.31904W)	0-15” 15-20”	10YR 4/3 10YR 3/1	Loam Loamy clay
Boring 4 (40.54.13.94790N 74.34.29.98567W)	0-2” 2-20”	10YR 4/3 10YR 3/2	Loam Loam
Boring 5 (40.54.14.63046N 74.34.29.45719W)	0-9” 9-20”	10YR 4/3 10YR 3/2	Loam Loam
Boring 6 (40.54.12.80847N 74.34.34.70682W)	0-20”	10YR 3/3	Loam

SEDIMENTATION AND EROSION CONTROL

There were no signs of erosion problems on the day the site was investigated. The potential for erosion issues has decreased due to the site’s increased vegetative cover. It is expected that as the vegetative cover of the mitigation area continues to increase, the potential for erosion will be effectively eliminated.

CONCLUSIONS

The mitigation area began during a year with stressful environmental conditions. The numbers of native and wetland species within the mitigation area were not as high as desired. However, due to extremely dry conditions and the fact that the site was planted less than one year ago, these preliminary results may be expected. When the mitigation wetland is finally able to experience spring hydrological events, it will provide a suitable environment for the germination of wetland species seeds, and the process of wetland restoration will be fully underway.

At this time, it is recommended that LEC proceed with the following steps.

1. Planting at least 250 additional bareroot trees in the spring of 2007
2. Continue maintenance visits for invasive species control to eliminate or effectively control their presence in the wetland mitigation area. LEC currently has a 5-year maintenance plan contract in place that includes semi-annual visits.

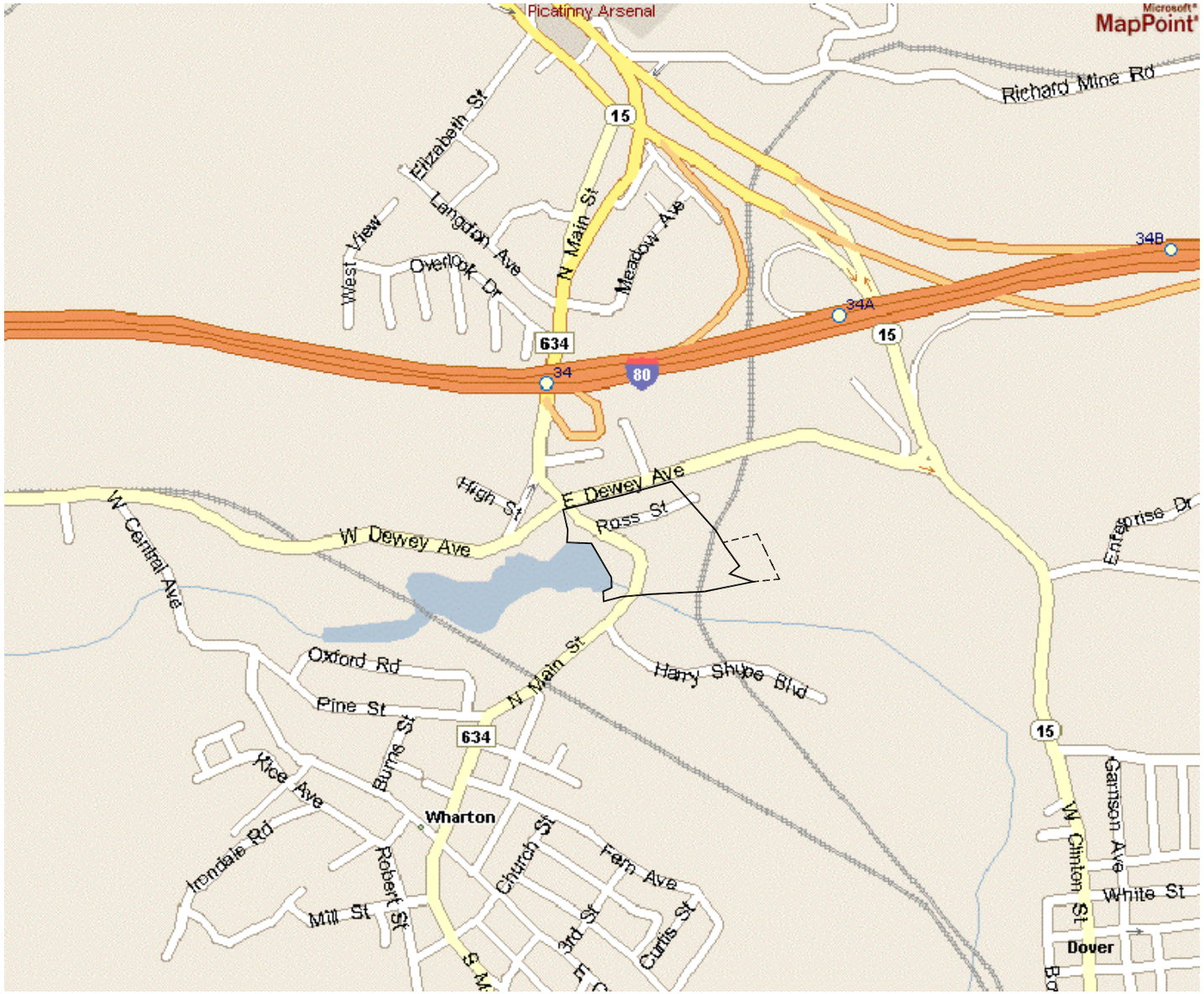
Due to the fact that wetland communities surrounding the mitigation site and elevations were restored to pre-existing contours with no impedance to surface or groundwater flow, we expect that wetland and transition zone restoration will continue to progress and be successful.

It should be noted that the remedial action work plan for the LEC site was altered in 2006 and the need for additional groundwater monitoring wells located in the mitigation area was confirmed. From late summer through the end of the year, permit modifications were being pursued by RMT, Inc. Due to the fact that the installation of additional monitoring wells will involve mitigation area site disturbance, supplemental planting and the second invasive species treatment were put on hold. Newly installed trees would have been run over by well installation equipment and resulted in duplicate replanting efforts. As soon as all required permit modifications are obtained from the NJDEP LURP, it is anticipated that the supplemental planting will be completed and the invasive species treatments will promptly resume. At the current time, it is anticipated that all required permit modifications will be obtained by the end of January 2007 and wells should be installed in the spring of 2007. This will allow ample time for an effective spring 2007 tree planting event along with reseeding of the areas disturbed by well installation activities.

REFERENCES

Gleason, Henry and Arthur Cronquist. 1991. *Manual of Vascular Plants of North-eastern United States and Adjacent Canada*. D. Van Nostrand Company, New York, New York. 910 pp.

Figures



LEGEND

- APPROXIMATE PROPERTY BOUNDARY

- EXPANDED PROJECT AREA

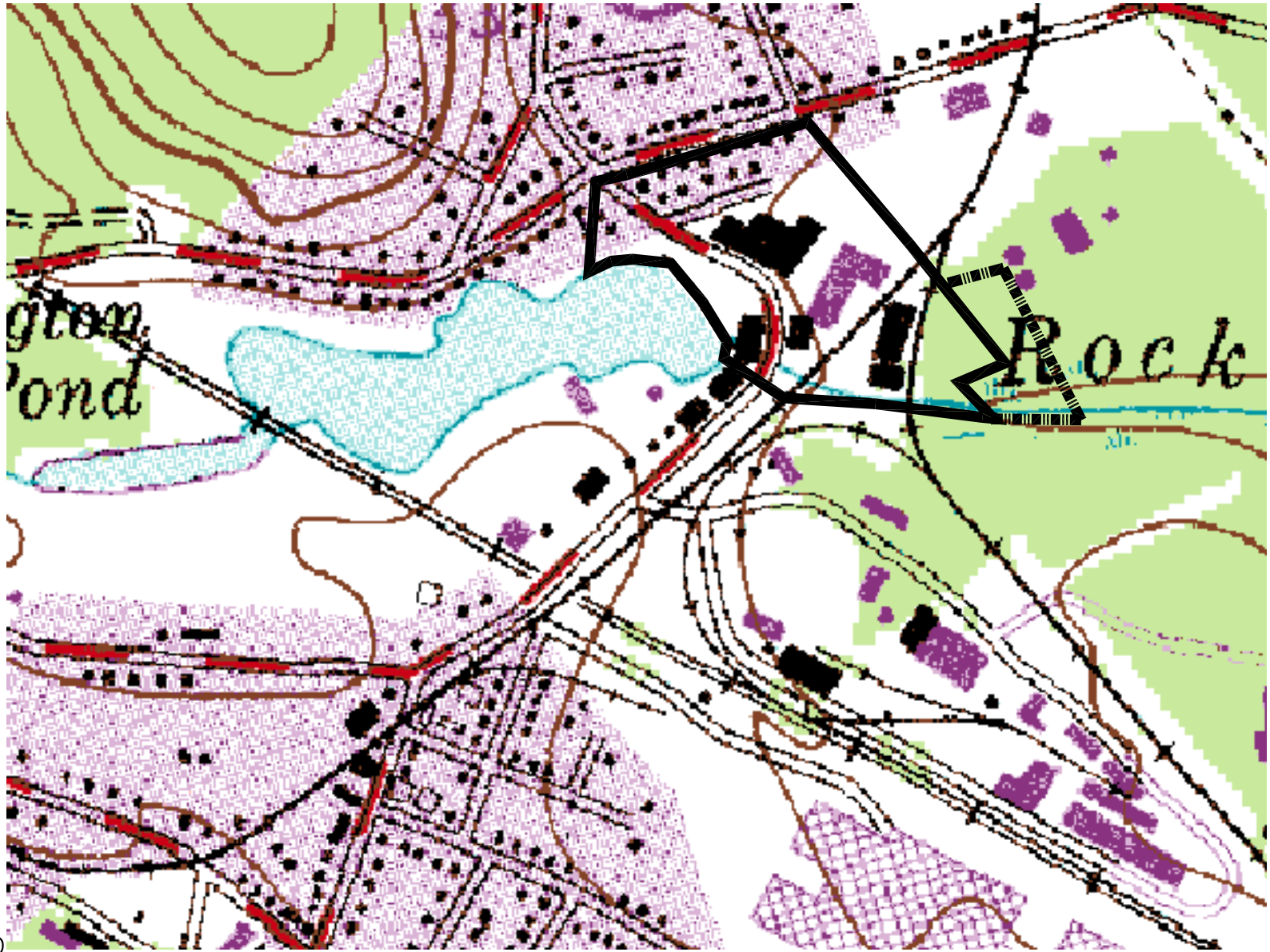
JFNew
11181 Marwill Avenue, MI 49460
(616) 847-1680/ Fax (616) 847-9970
www.jfnew.com

FIGURE 1 - LOCATION MAP

L.E. CARPENTER
WHARTON, NEW JERSEY

N

SCALE: NTS
DATE: 09.23.04
FILE: 040229LocationMap



LEGEND

- APPROXIMATE PROPERTY BOUNDARY

- EXPANDED PROJECT AREA

NOTES

STATE PLANE COORDINATES - 754326.58N 470891.83E (NAD83)

SOURCE:USGS DOVER,NJ QUADRANGLE

HUC-14 CODE 02030103030070

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(616) 847-1680/ Fax (616) 847-9970
www.jfnew.com

FIGURE 2 - USGS MAP

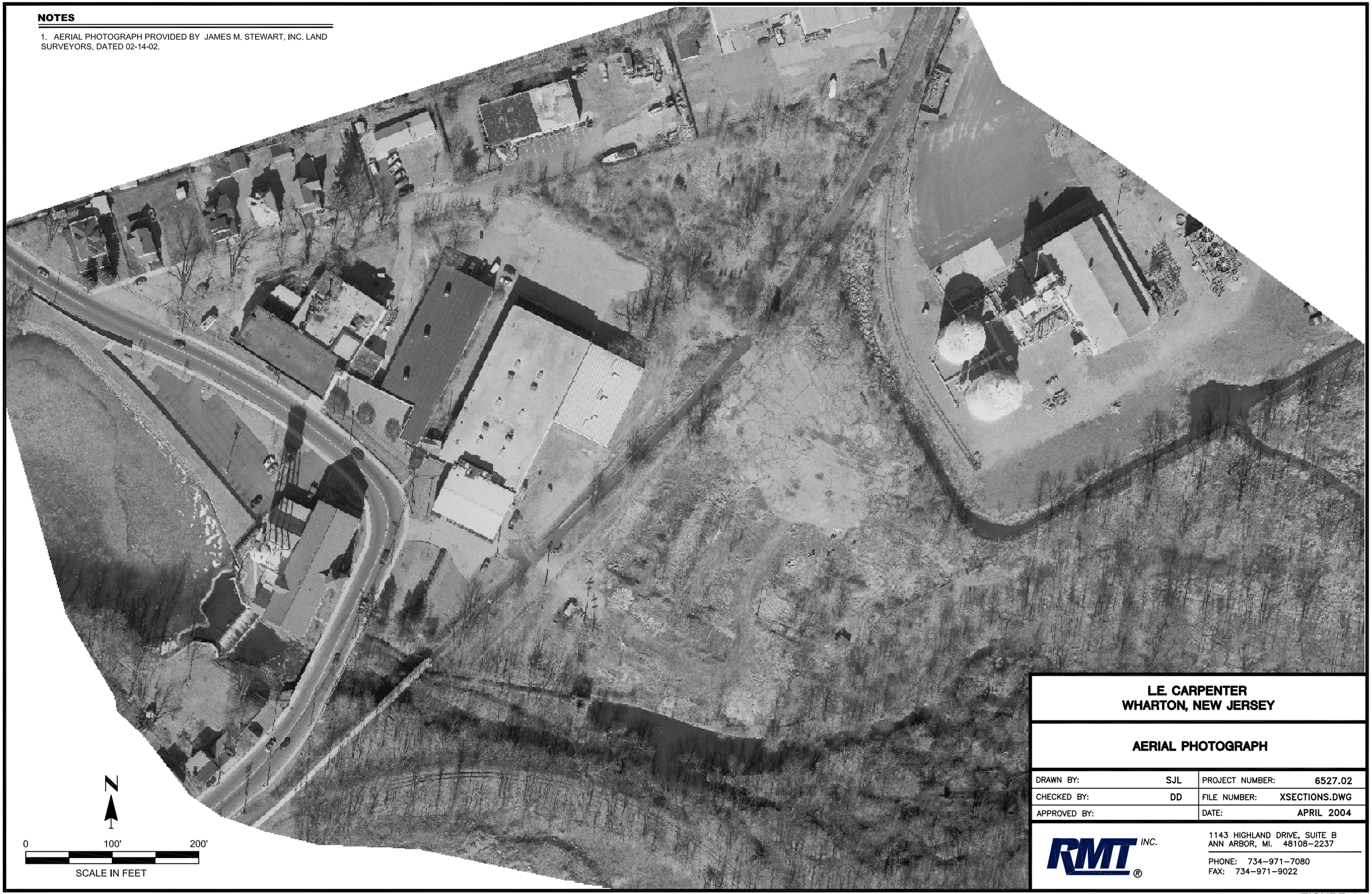
L.E. CARPENTER
WHARTON, NEW JERSEY

N

SCALE: NTS
DATE: 12.12.2005
FILE: 040229USGSmap

NOTES

1. AERIAL PHOTOGRAPH PROVIDED BY JAMES M. STEWART, INC. LAND SURVEYORS, DATED 02-14-02.



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Attached Xref's: No xref's Attached.

LE. CARPENTER
WHARTON, NEW JERSEY

AERIAL PHOTOGRAPH

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CHECKED BY:	DD	FILE NUMBER:	XSECTIONS.DWG
APPROVED BY:		DATE:	APRIL 2004

RMT INC.
1143 HIGHLAND DRIVE, SUITE B
ANN ARBOR, MI. 48108-2237
PHONE: 734-971-7080
FAX: 734-971-9022

FIGURE 3

RMT COMPUTER AIDED DESIGN AND DRAFTING

EMERGENT WETLAND (PEM) SEED MIX (0.19 acre)

NATIVE COMPONENT

Scientific Name	Common Name	Ounces/Acre
Acorus calamus	Sweet flag	8.50
Alisma subcordatum	Common water plantain	8.00
Echinochloa crusgalli	Barnyard grass	12.00
Eleocharis obtusa	Blunt spike rush	3.00
Iris virginica shrevei	Blue flag iris	4.00
Juncus effusus	Soft rush	3.00
Leersia oryzoides	Rice cut grass	4.00
Lobelia cardinalis	Cardinal flower	0.75
Lobelia siphilitica	Great blue lobelia	1.00
Mimulus ringens	Monkey flower	2.00
Peltandra virginica	Arrow arum	16.00
Polygonum pensylvanicum	Pinkweed	6.00
Pontederia cordata	Pickerelweed	8.00
Sagittaria latifolia	Common arrowhead	8.00
Scirpus validus	Softstem bulrush	6.00
Sparganium eurycarpum	Common burreed	10.00
	TOTAL	100.25 oz/acre = 6.27 lbs/acre

TEMPORARY COVER COMPONENT

Scientific Name	Common Name	Ounces/Acre
Agrostis alba	Redtop	16.00
Lolium multiflorum	Annual rye	400.00
	TOTAL	416.00 oz/acre = 26.00 lbs/acre

SLOPE STABILIZATION SEED MIX (0.21 acre)

NATIVE COMPONENT

Scientific Name	Common Name	Ounces/Acre
Andropogon gerardii	Big bluestem	20.00
Andropogon scoparius	Little bluestem	32.00
Bouteloua curtipendula	Side-oats grama	3.00
Elymus canadensis	Canada wild-rye	5.00
Panicum virgatum	Switch grass	12.00
Sorghastrum nutans	Indian grass	24.00
	TOTAL	96.00 oz/acre = 6.00 lbs/acre

TEMPORARY COVER COMPONENT

Scientific Name	Common Name	Ounces/Acre
Agrostis alba	Redtop	16.00
Elymus hystrix	Eastern bottlebrush grass	64.00
Lolium multiflorum	Annual rye	400.00
	TOTAL	480.00 oz/acre = 30.00 lbs/acre

WOODED WETLAND UNDERSTORY SEED MIX (0.20 acre)

NATIVE COMPONENT

Scientific Name	Common Name	Ounces/Acre
Actinomeris alternifolia	Wingstem	1.00
Alisma subcordatum	Common water plantain	3.00
Aster umbellatus	Flat-top aster	1.25
Bidens cernua	Nodding bur marigold	3.00
Calamagrostis canadensis	Blue joint grass	3.00
Carex crinita	Fringed sedge	2.00
Carex hystericina	Porcupine sedge	4.00
Carex lupulina	Common hop sedge	4.00
Carex vulpinoidea	Fox sedge	6.00
Chelone glabra	Turtlehead	1.25
Elymus canadensis	Canada wild rye	6.00
Elymus virginicus	Virginia wild rye	12.00
Glyceria striata	Fowl manna grass	4.00
Helenium autumnale	Sneezeweed	1.50
Leersia oryzoides	Rice cut grass	2.00
Lobelia silphilitica	Great blue lobelia	1.50
Mimulus ringens	Monkeyflower	1.75
Panicum virgatum	Switch grass	2.50
Rudbeckia laciniata	Wild golden glow	0.75
Scirpus atrovirens	Dark green rush	6.00
Spartina pectinata	Prairie cord grass	4.00
	TOTAL	70.50 oz/acre = 4.41 lbs/acre

TEMPORARY COVER COMPONENT

Scientific Name	Common Name	Ounces/Acre
Agrostis alba	Redtop	16.00
Elymus hystrix	Eastern bottlebrush grass	64.00
Lolium multiflorum	Annual rye	400.00
	TOTAL	480.00 oz/acre = 30.00 lbs/acre

BARE ROOT TREES (PFO/SS WETLAND) (0.20 acre)

Scientific Name	Common Name	Quantity
Acer saccharinum	Silver maple	25
Betula nigra	River birch	25
Fraxinus pennsylvanica	Green Ash	50
Quercus palustris	Pin oak	25
	TOTAL	125

BARE ROOT SHRUBS (CHANNEL SLOPE STABILIZATION) (0.03 acre)

Scientific Name	Common Name	Quantity
Cornus obliqua	Silky Dogwood	50
Salix discolor	Pussy Willow	50
	TOTAL	100

BARE ROOT TREES (TRANSITION ZONE) (0.18 acre)

Scientific Name	Common Name	Quantity
Acer saccharum	Sugar Maple	25
Juglans nigra	Black Walnut	25
Liriodendron tulipfera	American elm	50
Quercus rubra	Northern red oak	50
	TOTAL	150

LEGEND

- APPROXIMATE PROPERTY LINE
- FENCE LINE
- TREES
- 630 — FINAL GRADE CONTOUR LINE
- PVC-1 — WETLAND RESTORATION AND TRANSITION ZONE BOUNDARY POINTS MARKED IN THE FIELD WITH 3-foot LENGTHS OF 3-inch WHITE PVC; LURP Special Condition 11c
- BORING 1 — BORING 1: NJDEP LURP REQUIRED SOIL BORINGS, Permit Condition 11e
- AREA OF SOURCE REDUCTION DISTURBANCE OUTSIDE OF REGULATED WETLAND AREA
- STATE OPEN WATERS
- WETLAND BOUNDARY
- LIMITS SOURCE REDUCTION PCB EXCAVATION WITHIN REGULATED WETLAND AREA
- PEM (EMERGENT WETLAND)
- PFO / SS (FORESTED / SCRUB-SHRUB WETLAND)
- PFO / SS IMPACT (0.23 ACRE)
- PEM IMPACT (0.19 ACRE)
- TRANSITION ZONE IMPACT (0.18 ACRE)

SAMPLE OR MONITORING LOCATION AND NUMBER

- MW-21 — MONITORING WELL LOCATION AND NUMBER
- TRANSECT LOCATION WITH PLOTS
- 5 — PHOTOSTATION LOCATIONS

WETLAND SIGN LOCATION

- W — WETLAND MITIGATION PROJECT SIGN

NOTES

1. BASE MAP DEVELOPED FROM TOPOGRAPHIC SURVEY PROVIDED BY JAMES M. STEWART, INC. LAND SURVEYORS, DRAWING NO 2793-03.DWG, DATED 02-14-02.
2. TOTAL PROPOSED WETLAND IMPACT 0.42 ACRE.
3. PROPOSED DENSITY FOR TREE RESTORATION IS 10' ON CENTER.

N

0 30' 60' 90' 120'
SCALE IN FEET

JFNew
11181 Marwill Avenue, MI 49460
(616) 847-1680/ Fax (616) 847-9970
www.jfnew.com

NO.	BY	DATE	REVISION	APP'D.
5.				
4.				
3.				
2.				
1.				

L.E. CARPENTER
WHARTON, NEW JERSEY

MITIGATION MONITORING MAP

DRAWN BY: SJL	SCALE: SHOWN	PROJECT NO. 6527.16
CHECKED BY: NC		FILE NO. 6527.16.01.DWG
APPROVED BY:	DATE PRINTED:	FIGURE 4
DATE: AUGUST 2005		

RMT INC.
1143 HIGHLAND DRIVE, SUITE B
ANN ARBOR, MI. 48108-2237
PHONE: 313-971-7080
FAX: 313-971-9022

PLOT DATA
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Appendices

Appendix A:
Planting List

EMERGENT WETLAND IMPACT AREA (0.19 acre)

Emergent Wetland Seed Mix (32.27 pounds/acre)

Native Component

Scientific Name	Common Name	Ounces/Acre
Acorus calamus	Sweet flag	8.50
Alisma subcordatum	Common water plantain	8.00
Echinochloa crusgalli	Barnyard grass	12.00
Eleocharis ovata	Blunt spike rush	3.00
Iris virginica shrevei	Blue flag iris	4.00
Juncus effusus	Soft rush	3.00
Leersia oryzoides	Rice cut grass	4.00
Lobelia cardinalis	Cardinal flower	0.75
Lobelia siphilitica	Great blue lobelia	1.00
Mimulus ringens	Monkey flower	2.00
Peltandra virginica	Arrow arum	16.00
Polygonum pensylvanicum	Pinkweed	6.00
Pontederia cordata	Pickerelweed	8.00
Sagittaria latifolia	Common arrowhead	8.00
Scirpus validus	Softstem bulrush	6.00
Sparganium eurycarpum	Common burreed	10.00
TOTAL NATIVE FORBS AND GRASSES		100.25 = (6.27 lbs/acre)

Temporary Cover Component

Scientific Name	Common Name	Ounces/Acre
Agrostis gigantea	Redtop	16.00
Lolium perenne	Annual rye	400.00
TOTAL		416.00 = (26.00 lbs/acre)

FORESTED/SCRUB-SHRUB IMPACT AREA (0.20 acre)

Wooded Wetland Understory Seed Mix (34.41 pounds/acre)

Native Component

Scientific Name	Common Name	Ounces/Acre
Alisma subcordatum	Common water plantain	3.00
Aster umbellatus	Flat-top aster	1.25
Bidens cernua	Nodding bur marigold	3.00
Calamagrostis canadensis	Blue joint grass	3.00
Carex crinita	Fringed sedge	2.00
Carex hystericina	Porcupine sedge	4.00
Carex lupulina	Common hop sedge	4.00
Carex vulpinoidea	Fox sedge	6.00
Chelone glabra	Turtlehead	1.25
Elymus canadensis	Canada wild rye	6.00
Elymus virginicus	Virginia wild rye	12.00
Glyceria striata	Fowl manna grass	4.00
Helenium autumnale	Sneezeweed	1.50
Leersia oryzoides	Rice cut grass	2.00
Lobelia silphilitica	Great blue lobelia	1.50
Mimulus ringens	Monkeyflower	1.75
Panicum virgatum	Switch grass	2.50
Rudbeckia laciniata	Wild golden glow	0.75
Scirpus atrovirens	Dark green rush	6.00
Spartina pectinata	Prairie cord grass	4.00
Verbesina alternifolia	Wingstem	1.00
TOTAL NATIVE FORBS AND GRASSES		70.50 = (4.41 lbs/acre)

Temporary Cover Component

Scientific Name	Common Name	Ounces/Acre
Agrostis gigantea	Redtop	16.00
Elymus hystrix	Eastern bottlebrush grass	64.00
Lolium multiflorum	Annual rye	400.00
TOTAL		480.00 = (30.00 lbs/acre)

Native Trees and Shrubs

Scientific Name	Common Name	Quantity
Acer saccharinum	Silver maple	25
Betula nigra	River birch	25
Fraxinus pennsylvanica	Green ash	50
Quercus palustris	Pin oak	25
TOTAL TREES		125

DRAINAGE CHANNEL SIDESLOPE IMPACT AREA (0.03 acre)

Slope Stabilization Mix (36.00 pounds/acre)

Native Component

Scientific Name	Common Name	Ounces/Acre
Andropogon gerardii	Big bluestem	20.00
Bouteloua curtipendula	Side-oats grama	3.00
Elymus canadensis	Canada wild-rye	5.00
Panicum virgatum	Switch grass	12.00
Schizachyrium scoparium	Little bluestem	32.00
Sorghastrum nutans	Indian grass	24.00
TOTAL NATIVE GRASSES		96.00 = (6.00 lbs/acre)

Temporary Cover Component

Scientific Name	Common Name	Ounces/Acre
Agrostis gigantea	Redtop	16.00
Elymus hystrix	Eastern bottlebrush grass	64.00
Lolium perenne	Annual rye	400.00
TOTAL		480.00 = (30.00 lbs/acre)

Native Trees and Shrubs

Scientific Name	Common Name	Quantity
Cornus amomum	Silky dogwood	50
Salix discolor	Pussy willow	50
TOTAL TREES		100

TRANSITION ZONE IMPACT AREA (0.18 acre)

Slope Stabilization Mix (36.00 pounds/acre)

Native Component

Scientific Name	Common Name	Ounces/Acre
Andropogon gerardii	Big bluestem	20.00
Bouteloua curtipendula	Side-oats grama	3.00
Elymus canadensis	Canada wild-rye	5.00
Panicum virgatum	Switch grass	12.00
Schizachyrium scoparium	Little bluestem	32.00
Sorghastrum nutans	Indian grass	24.00
TOTAL NATIVE GRASSES		96.00 = (6.00 lbs/acre)

Temporary Cover Component

Scientific Name	Common Name	Ounces/Acre
Agrostis gigantea	Redtop	16.00
Elymus hystrix	Eastern bottlebrush grass	64.00
Lolium perenne	Annual rye	400.00
TOTAL		480.00 = (30.00 lbs/acre)

Native Trees and Shrubs

Scientific Name	Common Name	Quantity
Acer saccharum	Sugar maple	25
Juglans nigra	Black walnut	25
Liriodendron tulipifera	Tulip tree	50
Quercus rubra	Red oak	50
TOTAL TREES		150

Appendix B:
Wetland Data Sheets

DATA ENTRY FORM

MITIGATION WETLAND MONITORING

Special Site Notes: None

Project Number: 040229	**Project Name/Location:** RMT/New Jersey
General Site Conditions: Moist to 1/2" water depth	**Date:** 10-27-2006
Past and Present Weather: Sunny, dry	**Hydrology:** Soil moist to saturated, with puddles up to 3" deep
Wildlife:	

VEGETATION SAMPLING DATA

Transect 1: Transition Zone

Plot Number	Species Names	Cover	Plot Number	Species Names	Cover
Plot 1	*Artemisia vulgaris*	2%	Plot 4	*Acalypha rhomboidea*	2%
	Barbarea vulgaris	3%		*Dactylis glomerata*	75%
	Cyperus esculentus	7%		*Panicum capillare*	10%
	Euthamia graminifolia	3%		*Panicum dichotomiflorum*	2%
	Panicum capillare	5%		*Plantago rugelii*	2%
	Panicum dichotomiflorum	60%		*Polygonum persicaria*	3%
	Setaria glauca	5%		*Potentilla simplex*	2%
	Bare soil	15%		*Setaria glauca*	5%
				Trifolium repens	2%
Plot 2	*Acalypha rhomboidea*	1%			
	Dactylis glomerata	75%	Plot 5	*Dactylis glomerata*	45%
	Erigeron pulchellus	1%		*Panicum capillare*	50%
	Hypericum sp.	2%		*Panicum dichotomiflorum*	2%
	Panicum capillare	5%		*Polygonum persicaria*	2%
	Potentilla simplex	2%		*Potentilla simplex*	3%
	Trifolium repens	4%			
	Bare soil	10%			
Plot 3	*Acer rubrum*	1%			
	Chenopodium album	1%			
	Dactylis glomerata	75%			
	Gnaphalium obtusifolium	3%			
	Lobelia spicata	3%			
	Melilotus alba	6%			
	Panicum dichotomiflorum	2%			
	Potentilla simplex	2%			
	Setaria glauca	3%			
	Trifolium repens	4%			

VEGETATION SAMPLING DATA	
Transect 1: Transition Zone Inventory	
Species Names	**Species Names**
Acalypha rhomboidea	*Potentilla simplex*
Acer rubrum	*Rosa palustris*
Alliaria petiolata	*Rubus flagellaris*
Ambrosia artemisiifolia	*Rudbeckia hirta*
Andropogon scoparius	*Rumex crispus*
Artemisia vulgaris	*Setaria glauca*
Aster pilosus	*Solidago altissima*
Barbarea vulgaris	*Taraxacum officinale*
Centaurea maculosa	*Trifolium repens*
Chenopodium album	*Unknown herbaceous #1*
Chrysanthemum leucanthemum	*Unknown herbaceous #2*
Cirsium arvense	*Verbascum thapsus*
Cyperus esculentus	*Verbena urticifolia*
Cactylis glomerata	
Datura stramonium	
Echinochloa crusgalli	
Erigeron pulchellus	
Euthamia graminifolia	
Gnaphalium obtusifolium	
Hypericum sp.	
Lespedeza capitata	
Lobelia spicata	
Lythrum salicaria	
Melilotus alba	
Oenothera biennis	
Panicum capillare	
Panicum dichotomiflorum	
Panicum sp.	
Phalaris arundinacea	
Plantago lanceolata	
Plantago major	
Plantago rugelii	
Polygonum pensylvanicum	
Polygonum persicaria	
Populus deltoides	

VEGETATION SAMPLING DATA					
Transect 2: Emergent Wetland Zone					
Plot Number	**Species Names**	**Cover**	**Plot Number**	**Species Names**	**Cover**
Plot 1	*Aster puniceus*	5%	Plot 4	*Artemisia vulgaris*	4%
	Cornus amomum	2%		*Echinochloa crusgalli*	10%
	Echinochloa crusgalli	5%		*Helenium autumnale*	3%
	Lythrum salicaria	5%		*Lythrum salicaria*	6%
	Mentha arvensis	2%		*Panicum dichotomiflorum*	55%
	Panicum dichotomiflorum	5%		*Plantago major*	10%
	Panicum sp.	30%		*Polygonum pensylvanicum*	2%
	Phalaris arundinacea	3%		*Trifolium repens*	4%
	Polygonum sagittatum	3%		*Verbascum thapsus*	3%
	Rumex crispus	2%		Bare soil	5%
	Salix sp.	5%			
	Typha latifolia	3%	Plot 5	*Agrostis gigantea*	15%
	Verbena urticifolia	5%		*Echinochloa crusgalli*	10%
	Bare soil	30%		*Helenium autumnale*	10%
				Lythrum salicaria	3%
Plot 2	*Acalypha rhomboidea*	2%		*Panicum dichotomiflorum*	30%
	Echinochloa crusgalli	45%		*Plantago major*	10%
	Helenium autumnale	5%		*Polygonum pensylvanicum*	2%
	Lythrum salicaria	5%		*Setaria glauca*	20%
	Panicum sp.	3%			
	Plantago major	10%	Plot 6	*Agrostis gigantea*	25%
	Polygonum pensylvanicum	5%		*Echinochloa crusgalli*	4%
	Setaria glauca	2%		*Helenium autumnale*	7%
	Trifolium repens	3%		*Lythrum salicaria*	3%
	Bare soil	20%		*Panicum dichotomiflorum*	40%
				Plantago major	10%
Plot 3	*Aster lanceolatus*	7%		*Polygonum pensylvanicum*	2%
	Aster puniceus	3%		*Rosa multiflora*	2%
	Cyperus esculentus	2%		*Setaria glauca*	10%
	Echinochloa crusgalli	30%		Bare soil	5%
	Lythrum salicaria	10%			
	Mimulus ringens	3%			
	Panicum dichotomiflorum	25%			
	Plantago major	5%			
	Setaria glauca	15%			
	Solidago gigantea	2%			

VEGETATION SAMPLING DATA	
Emergent Wetland Zone Inventory	
Hydrology: Soil moist to saturated at surface.	
	Species Names
Species Names	*Salix sp.*
Acalypha rhomboidea	*Scirpus cyperinus*
Agrostis gigantea	*Setaria glauca*
Artemisia vulgaris	*Solanum dulcamara*
Aster lanceolatus	*Solidago gigantea*
Aster pilosus	*Solidago rugosa*
Aster puniceus	*Trifolium repens*
Berberis vulgaris	*Typha latifolia*
Carex crinita	*Verbascum thapsus*
Cirsium vulgare	*Verbena hastata*
Cornus amomum	*Verbena urticifolia*
Cyperus esculentus	
Echinochloa crusgalli	
Epilobium coloratum	
Euthamia graminifolia	
Geum laciniatum	
Hackelia virginiana	
Helenium autumnale	
Impatiens capensis	
Lonicera tatarica	
Lythrum salicaria	
Mentha arvensis	
Mimulus ringens	
Panicum dichotomiflorum	
Panicum sp.	
Phalaris arundinacea	
Plantago lanceolata	
Plantago major	
Polygonum hydropiperoides	
Polygonum pensylvanicum	
Polygonum sagittatum	
Populus deltoides	
Quercus bicolor	
Rosa multiflora	
Rubus allegheniensis	
Rumex crispus	

VEGETATION SAMPLING DATA					
Transect 3: Wooded Wetland Zone					
Plot Number	**Species Names**	**Cover**	**Plot Number**	**Species Names**	**Cover**
Plot 1	*Asclepias incarnata*	2%	Plot 4	*Agrostis gigantea*	40%
	Bidens cernuus	5%		*Bidens connatus*	4%
	Cyperus strugosus	15%		*Echinochloa crusgalli*	10%
	Echinochloa crusgalli	30%		*Helenium autumnale*	2%
	Leersia oryzoides	30%		*Lobelia spicata*	2%
	Lythrum salicaria	15%		*Lythrum salicaria*	3%
	Typha latifolia	3%		*Panicum dichotomiflorum*	15%
				Plantago major	20%
Plot 2	*Acalypha rhomboidea*	1%		*Setaria glauca*	2%
	Artemisia vulgaris	1%		*Trifolium repens*	5%
	Bidens cernuus	2%			
	Cyperus esculentus	2%	Plot 5	Agrostis gigantea	40%
	Cyperus strigosus	2%		Conyza canadensis	2%
	Echinochloa crusgalli	30%		*Echinochloa crusgalli*	5%
	Helenium autumnale	10%		*Lobelia inflata*	2%
	Lythrum salicaria	8%		*Lythrum salicaria*	3%
	Panicum dichotomiflorum	3%		*Panicum dichotomiflorum*	7%
	Plantago major	15%		*Plantago major*	35%
	Polygonum hydropiperoides	2%		*Setaria glauca*	3%
	Potentilla simplex	3%		*Trifolium repens*	3%
	Rumex crispus	3%			
	Setaria glauca	1%	Plot 6	*Agrostis gigantea*	5%
	Trifolium repens	2%		*Echinochloa crusgalli*	8%
	Bare soil	15%		*Euthamia graminifolia*	5%
				Lobelia spicata	5%
Plot 3	*Agrostis gigantea*	40%		*Lythrum salicaria*	2%
	Artemisia vulgaris	2%		*Panicum dichotomiflorum*	20%
	Bidens connatus	1%		*Plantago major*	40%
	Conyza canadensis	2%		*Polygonum hydropiperoides*	2%
	Dactylis glomerata	2%		*Populus deltoides*	2%
	Echinochloa crusgalli	5%		*Potentilla simplex*	3%
	Euthamia graminifolia	2%		*Setaria glauca*	5%
	Helenium autumnale	2%		*Solidago rugosa*	3%
	Panicum capillare	4%			
	Panicum dichotomiflorum	5%			
	Plantago major	20%			
	Setaria glauca	5%			
	Solidago altissima	3%			
	Trifolium repens	4%			
	Verbena urticifolia	3%			

VEGETATION SAMPLING DATA	
Transect 3: Wooded Wetland Zone Inventory	
Species Names	**Species Names**
Acalypha rhomboidea	*Setaria glauca*
Acer saccharinum	*Smilax tamnoides*
Agrostis gigantea	*Solidago altissima*
Artemisia vulgaris	*Solidago gigantea*
Asclepias incarnata	*Solidago rugosa*
Bidens cernuus	*Tilia americana*
Bidens connatus	*Trifolium repens*
Carex vulpinoidea	*Typha latifolia*
Cirsium discolor	*Verbascum thapsus*
Conyza canadensis	*Verbena hastata*
Cornus amomum	*Verbena urticifolia*
Cyperus esculentus	
Cyperus strigosus	
Dactylis glomerata	
Echinochloa crusgalli	
Elymus canadensis	
Euthamia graminifolia	
Fraxinus pennsylvanica	**Woody Species Count**
Helenium autumnale	*Acer saccharinum* - 12
Juncus effusus	*Cornus amomum* -13
Leersia oryzoides	*Salix discolor* - 2
Lobelia inflata	
Lobelia spicata	
Lythrum salicaria	
Melilotus alba	
Mentha arvensis	
Mimulus ringens	
Panicum capillare	
Panicum dichotomiflorum	
Penthorum sedoides	
Phalaris arundinacea	
Plantago major	
Polygonum hydropiperoides	
Polygonum lapathifolium	
Polygonum pensylvanicum	
Polytonum sagittatum	
Populus deltoides	
Potentilla simplex	
Quercus palustris	
Rosa multiflora	
Rumex crispus	
Salix sp.	

Appendix C:
Photographs of
Wetland Development

Photo 1. View looking northeast at transition zone.

Photo 2. View looking west into emergent wetland zone.

Site Photographs
June 12, 2006
L.E. Carpenter & Company
Wetland Restoration Area
Wharton, Morris County, New Jersey

JFNew # 040229

JFNew
11181 Marwill Avenue West Olive, MI 49460
Phone 616-847-1680 / Fax 616-847-9970
www.jfnew.com

Photo 3. View looking northeast at emergent wetland zone. (Photostation 5)

Photo 4. View looking south into forested wetland zone. (Photostation 5)

Site Photographs
June 12, 2006
L.E. Carpenter & Company
Wetland Restoration Area
Wharton, Morris County, New Jersey

JFNew # 040229

JFNew
11181 Marwill Avenue West Olive, MI 49460
Phone 616-847-1680 / Fax 616-847-9970
www.jfnew.com

Photo 5. View looking northeast at transition zone. (Photostation 2)

Photo 6. View looking northwest at scrub-shrub wetland zone. (Photostation 1)

Site Photographs
October 27, 2006
L.E. Carpenter & Company
Wetland Restoration Area
Wharton, Morris County, New Jersey

JFNew # 040229

JFNew
11181 Marwill Avenue West Olive, MI 49460
Phone 616-847-1680 / Fax 616-847-9970
www.jfnew.com

Photo 7. View looking northeast into emergent wetland zone. (Photostation 3)

Photo 8. View looking northwest into forested wetland zone. (Photostation 4)

Site Photographs
October 27, 2006
L.E. Carpenter & Company
Wetland Restoration Area
Wharton, Morris County, New Jersey

JFNew # 040229

JFNew
11181 Marwill Avenue West Olive, MI 49460
Phone 616-847-1680 / Fax 616-847-9970
www.jfnew.com

Photo 9. View looking west at forested wetland zone. (Photostation 4)

Photo 10. View looking northeast at transition zone.

Site Photographs **October 27, 2006** **L.E. Carpenter & Company** **Wetland Restoration Area** **Wharton, Morris County, New Jersey**	JFNew # 040229	JFNew 11181 Marwill Avenue West Olive, MI 49460 Phone 616-847-1680 / Fax 616-847-9970 www.jfnew.com

Appendix D:
NJDEP Permit 1439-04-0001.1

State of New Jersey
Department of Environmental Protection

Richard J. Codey
Acting Governor

Bradley M. Campbell
Commissioner

Land Use Regulation Program
P.O. Box 439, Trenton, NJ 08625-0439
Fax # (609) 292-8115
www.state.nj.us/dep/landuse

FEB 25 2005

Mr. Nicholas Clevett
RMT, Inc., Michigan
2025 E. Beltline Avenue SE, Suite 402
Grand Rapids, MI 49546

RE: Authorization for Freshwater Wetlands Statewide General Permit No. 4
File No.: 1439-04-0001.1 (FWW 040001)
Applicant: L.E. Carpenter & Company
Block: 301; Lot: 1
Block: 801; Lots: 3, 4, & 5
Wharton Borough, Morris County
Nearest Waterway: Rockaway River
Passaic River Basin

Dear Mr. Clevett:

The Land Use Regulation Program has reviewed the referenced application for a Statewide General Permit authorization pursuant to the requirements of the Freshwater Wetlands Protection Act Rules at N.J.A.C. 7:7A. **The proposed activity is authorized by Statewide General Permit No. 4**, which allows regulated activities in freshwater wetlands, transition areas and State open waters for the investigation, cleanup or removal of hazardous substances or pollutants, which are undertaken, authorized or otherwise expressly approved in writing by the Department of Environmental Protection (Department).

Limit of Authorized Disturbance

The approved plans are prepared by RMT, Inc., dated February 21, 2005, last revised February 21, 2005, and entitled:

"L.E. Carpenter, Wetland and Stream Encroachment Permit Applications, Wharton, New Jersey"

"F3 – Wetland Impact Map", Sheet No. F3 of 7;
"F4 – Wetland Restoration Plan", Sheet No. F4 of 7;
"F5 – Construction Staging and Excavation Plan", Sheet No. F5 of 7;
"F6 – Final Grading Plan", Sheet No. F6 of 7;
"F7 – Details", Sheet No. F7 of 7

Based on the approved plans, the authorized activity involves the disturbance of approximately 0.42 of an acre of freshwater wetlands and/or State open waters and approximately 0.19 acres of wetland transition areas for removal of contaminated soil and restoration of the disturbed areas. Any additional disturbance of freshwater wetlands, State open waters or transition areas besides that shown on the approved plans shall be considered a violation of the Freshwater Wetlands Protection Act unless the activity is exempt or a permit is obtained prior to the start of the disturbance from the Land Use Regulation Program.

Permit Conditions

The activities allowed by this authorization shall comply with the following conditions. Failure to comply with these conditions shall constitute a violation of the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.).

Special Conditions

1. All regulated activities at this existing Superfund site must be in accordance with the requirements of the Department's Site Remediation Program and the United States Environmental Protection Agency, including any requirements contained within an approved Remedial Action Workplan.

2. In order to protect the trout maintenance and trout stocked waters of the Rockaway River, any proposed grading or construction activities within the banks of this river are prohibited between March 15 and June 15 of each year. In addition, any activity within the 100-year flood plain or flood hazard area of this watercourse which could introduce sediment into said stream or which could cause an increase in the natural level of turbidity is also prohibited during this period. The Department reserves the right to suspend all regulated activities on site should it be determined that the applicant has not taken proper precautions to ensure continuous compliance with this condition.

3. All backfill soils shall consist of clean, suitable material free from toxic pollutants in toxic amounts.

4. In addition to restoration of the wetland transition area as shown on the approved plan entitled "F4- Wetland Restoration Plan", the applicant shall also restore an area of wetland transition area not currently shown on the plan. This area extends 50' from the wetlands on the Wharton Enterprise property. These wetlands are classified as Intermediate resource value. This additional wetland transition area is drawn on the attached map portion. The restoration of this additional area shall be consistent with the notes on Sheet No. F4 of 7.

5. The mitigation project must be conducted prior to or concurrent with the construction of the approved project.

6. Mitigate for the loss of 0.16 acres of emergent wetlands and 0.26 acres of forested and scrub/shrub wetlands through an on-site restoration project as shown on the plan entitled "F4 - Wetland Restoration Plan, L.E. Carpenter, Wetland and Stream Encroachment Permit Applications, Wharton, New Jersey", dated February 21, 2005, last revised February 21, 2005, and prepared by RMT, Inc. In the event there is a conflict between the permit conditions and the approved mitigation plan and proposal the permit conditions take precedent.

7. The permittee shall notify the Land Use Regulation Program, in writing, at least thirty (30) days in advance of the start of construction of the wetland mitigation project for an on-site pre-construction meeting between the permittee, the contractor, the consultant and the Program.

8. The mitigation designer must be present during critical stages of construction of the mitigation project this includes but is not limited to herbicide applications, sub-grade inspection, final grade inspection, and planting inspection to ensure the intent of the mitigation design and their predicted wetland hydrology is realized in the landscape. Mitigation designs are not static documents and changes may be necessary to ensure success of the project. It shall be the prerogative of the mitigation consultant to make changes to the design should field conditions warrant such action.

9. Immediately following final grading of the site, a disc must be run over the site to eliminate compaction. The mitigation designer must be present to oversee this phase of the project and confirm with the Department this activity has occurred prior to planting of the site.

10. Immediately following the final grading of the mitigation site and prior to planting, the permittee shall notify the Program for a post-grading construction meeting between the permittee, contractor, consultant and the Program. The permittee must give the Program at least thirty (30) days notice prior to the date of this meeting.

11. Within 30 days following the final grading and planting of the mitigation project, the permittee shall submit a final report to the Land Use Regulation Program. The final report shall contain, at a minimum, the following information:

    a. A completed WETLAND MITIGATION PROJECT COMPLETION OF CONSTRUCTION FORM (attached) which certifies that the mitigation project has been constructed as designed and that the proposed area of wetland creation, restoration or enhancement has been accomplished;

    b. As built plans which depict final grade elevations at one foot contours and include a table of the species and quantities of vegetation that were planted including any grasses that may have been used for soil stabilization purposes;

    c. Show on the as-built plans that the boundaries of the wetland mitigation area has been visibly marked with 3 inch white PVC pipe extending 4 feet above the ground surface. The stakes must remain on the site for the entire monitoring period;

d. Photos of the constructed wetland mitigation project with a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983;

e. To document that the required amount of soil has been placed/replaced over the entire area of the mitigation site, provide a minimum of 6 soil profile descriptions to a depth of 20 inches. The location of each soil profile description should be depicted on the as built plan as well as provide the GPS waypoints in NJ state plane coordinates NAD 1983;

f. Submit soil test results demonstrating at least 8% organic carbon content (by weight) was incorporated into the A-horizon for sandy soil and for all other soil types 12% organic content or if manmade top soil was used it consisted of equal volumes of organic and mineral materials;

g. The permittee shall post the mitigation area with several permanent signs, which identify the site as a wetland mitigation project and that mowing, cutting, dumping and draining of the property is prohibited; and

h. The sign must also state the name of the permittee, LURP permit number along with a contact name and phone number.

12. If the Program determines that the mitigation project is not constructed in conformance with the approved plan, the permittee will be notified in writing and will have 60 days to submit a proposal to indicate how the project will be corrected. No financial surety will be released by the Program until the permittee demonstrates that the mitigation project is constructed in conformance with the approved plan, all soil has been stabilized and there is no active erosion.

13. The permittee shall monitor the mitigation project for 5 full growing seasons if it is a proposed forested or scrub/shrub wetland and 3 full growing seasons for an emergent wetland or State open water after the mitigation project has been constructed. The permittee shall submit monitoring reports to the Land Use Regulation Program no later than December 31st of each monitoring year (All monitoring reports must include the standard items identified in the attachment and the information requested below).

14. All monitoring report will include all the following information (see attached monitoring report checklist):

a. All monitoring reports except the final one must include documentation that it is anticipated, based on field data, that the goals of the wetland mitigation project including the transition area, as stated in the approved wetland mitigation proposal and the permit will be satisfied. If the permittee is finding problems with the mitigation project and does not anticipate the site will be a full success then recommendations on how to rectify the problems must be included in the report with a time frame in which they will be completed;

b. All monitoring reports except the final one must include field data to document that the site is progressing towards 85 percent survival and 85 percent area coverage of mitigation plantings or target hydrophytes (Target hydrophytes are non-invasive native species to the area and similar to ones identified on the mitigation planting plan). If the proposed plant community is a scrub/shrub or a forested wetland the permittee must also demonstrate each year with data that the woody species are thriving, increasing in stem density and height each year. If the field data shows that the mitigation project is failing to meet the vegetation survival, coverage and health goals, the monitoring

report should contain a discussion of steps that will be taken to rectify the problem, including a schedule of implementation;

c. All monitoring reports except the final one must include documentation of any invasive or noxious species (see below for list of species) colonizing the site and how they are being eliminated. The permittee is required to eliminate either through hand-pulling, application of a pesticide or other Department approved method any occurrence of an invasive/noxious species on the mitigation site during the monitoring period;

d. All monitoring reports except the final one must include documentation that demonstrates the proposed hydrologic regime as specified in the mitigation proposal appears to be met. If the permittee is finding problems with the mitigation project and does not anticipate the proposed hydrologic regime will be or has not been met then recommendations on how to rectify the problem must be included in the report along with a time frame within which it will be completed;

e. The final monitoring report must include documentation to demonstrate that the goals of the wetland mitigation project including the required transition area, as stated in the approved wetland mitigation proposal and the permit, has been satisfied. Documentation for this report will also include a field wetland delineation of the wetland mitigation project based on techniques as specified in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989);

f. The final monitoring report must include documentation the site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes. The permittee must also document that all plant species are healthy and thriving and if the proposed plant community contains trees demonstrate that the trees are at least five feet in height;

g. The final monitoring report must include documentation demonstrating the site is less than 10 percent occupied by invasive or noxious species such as but not limited to *Phalaris arundinacea* (Reed canary grass), *Phragmities australis* (Common reed grass), *Pueraria lobata* (Kudzu), *Typha latifloia* (Broad-leaved cattail), *Typha angustifolia* (Narrowed leaved cattail), *Lythrum salicaria* (Purple loosestrife), *Ailanthus altissima* (Tree-of-heaven), *Berberis thunbergi* (Japanese barberry), *Berberis vulgaris* (Common barberry), *Elaeagnus angustifloia* (Russian olive), *Elaeagnus umbellata* (Autumn olive), *Ligustrum obtusifolium* (Japanese privet), *Ligustrum vulgare* (Common privet) and *Rosa multiforia* (Multiflora rose);

h. The final monitoring report must include documentation that demonstrates that the proposed hydrologic regime as specified in the mitigation proposal, which proves the mitigation site is a wetland has been satisfied. The documentation shall include when appropriate monitoring well data, stream gauge data, photographs and field observation notes collected throughout the monitoring period; and

i. The final monitoring report must include documentation that the site contains hydric soils or there is evidence of reduction occurring in the soil throughout the delineated wetlands.

15. Once the required monitoring period has expired and the permittee has submitted the final monitoring report, the Program will make the finding that the mitigation project is either a

success or a failure. This mitigation project will be considered successful if the permittee demonstrates all of the following:

a. That the goals of the wetland mitigation project including acreage and the required transition area, as stated in the approved wetland mitigation proposal and the permit, has been satisfied. The permittee must submit a field wetland delineation of the wetland mitigation project based on the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989) which shows the exact acreage of State open waters, emergent, scrub/shrub and/or forested wetlands in the mitigation area;

b. The site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes which are species native to the area and similar to ones identified on the mitigation planting plan. All plant species in the mitigation area are healthy and thriving. All trees are at least five feet in height;

c. The site is less than 10 percent occupied by invasive or noxious species such as but not limited to *Phalaris arundinacea* (Reed canary grass), *Phragmities australis* (Common reed grass), *Pueraria montana* (Kudzu), *Typha latifloia* (Broad-leaved cattail), *Typha angustifolia* (Narrowed leaved cattail), *Lythrum salicaria* (Purple loosestrife), *Ailanthus altissima* (Tree-of-heaven), *Berberis thunbergi* (Japanese barberry), *Berberis vulgaris* (Common barberry), *Elaeagnus angustifloia* (Russian olive), *Elaeagnus umbellata* (Autumn olive), *Ligustrum obtusifolium* (Japanese privet), *Ligustrum vulgare* (Common privet) and *Rosa multiforia* (Multiflora rose);

d. The site contains hydric soils or there is evidence of reduction occurring in the soil; and,

e. The proposed hydrologic regime as specified in the mitigation proposal, which proves the mitigation site is a wetland has been satisfied.

16. If the mitigation project is considered a failure, the permittee is required to submit a revised mitigation plan to rectify the wetland mitigation site. The plan shall be submitted within 60 days of receipt of the letter from the Program indicating the wetland mitigation project was a failure.

17. The permittee shall assume all liability for accomplishing corrective work should the Program determine that the compensatory mitigation has not been 100% satisfactory. Remedial work may include re-grading and/or replanting the mitigation site. This responsibility is incumbent upon the permittee until such time that the Department makes the finding that the mitigation project is successful.

In addition to the above conditions and the conditions noted at N.J.A.C. 7:7A 4.3 and 5.4, the following general conditions must be met for the activity authorized under this Statewide General Permit:

General Conditions:

18. All fill and other earth work on the lands encompassed within this permit authorization shall be stabilized in accordance with "Standards for Soil Erosion and Sediment Control in New Jersey" to prevent eroded soil from entering adjacent waterways or wetlands at any time during and subsequent to construction.

19. This permit is revocable in accordance with DEP regulations and State law.

20. The issuance of this permit shall not be deemed to affect in any way other actions by the Department on any future application.

21. The activities shown on the approved plans shall be constructed and/or executed in conformity with any notes and details on said plans and any conditions stipulated herein.

22. No change in plans or specifications shall be made except with the prior written permission of the Department.

23. The granting of this authorization shall not be construed to in any way affect the title or ownership of the property, and shall not make the Department or the State a party in any suit or question of ownership of the property.

24. This permit is not valid and no work shall be undertaken pursuant to this authorization until all other required federal, state, and local approvals, licenses and permits necessary for commencement of work onsite have been obtained.

25. A complete, legible copy of this permit shall be kept at the work site and shall be exhibited upon request of any person.

26. The permittee shall allow the Program the right to inspect the construction site and also shall provide the Bureau of Coastal and Land Use Compliance and Enforcement, NJDEP, 401 East State Street, P.O. Box 422, Trenton, New Jersey 08625 with written notification 7 days prior to the start of the authorized work.

27. This authorization is valid for five years from the date of this letter unless more stringent standards are adopted by rule prior to this date.

Transition Area

The wetlands affected by this permit authorization are of Ordinary and Intermediate resource value. The wetland located associated with the drainage channel located along the eastern side of the site are classified as Ordinary resource value. No standard transition area is required adjacent to Ordinary resource value wetlands. The wetlands located on the adjacent Wharton Enterprise property are classified as Intermediate resource value and have a standard required transition area or buffer of 50 feet. In addition, all of the wetlands are classified as priority wetlands by the United States Environmental Protection Agency since they drain into the Passaic River Basin. This General Permit includes a transition area waiver that allows encroachment only in that portion of the transition area that has been determined by the Department to be necessary to accomplish the regulated activities. Any additional regulated activities conducted within the standard transition area shall require a separate transition area

waiver from the Program. Regulated activities within a transition area are defined at N.J.A.C. 7:7A-2.6.

Consistency with the Areawide Water Quality Management Plan

This project has not been reviewed for consistency with the relevant Water Quality Management Plan or Statewide Water Quality Management Planning Rules (N.J.A.C. 7:15). As such, there is no intended or implied approval regarding additional permits which may be required from the Department. For treatment works approvals, the consistency determination will be performed by the Bureau of Engineering and Permitting (North/South) which may be contacted at (609) 292-6894 for North (Middlesex, Hunterdon and Counties north) or (609) 633-1139 for South (Mercer, Monmouth and Counties south). For general information concerning the water quality management planning process, please contact the Division of Watershed Management at (609) 633-1179.

Appeal of Decision

In accordance with N.J.A.C. 7:7A-1.7, any person who is aggrieved by this decision may request a hearing within 30 days of the decision date by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, P.O. Box 402, Trenton NJ 08625. This request must include a completed copy of the Administrative Hearing Request Checklist.

If you have any questions regarding this authorization, please contact Susan Michniewski of our staff at (609) 633-9277. Please reference the above file number.

Sincerely,

Mark A. Godfrey, Supervisor
Morris & Bergen Counties Region
Bureau of Inland Regulation

Attachments (map sketch, mitigation forms)

c. Anthony Cinque, Site Remediation Program
Jodale Legg, Land Use Regulation Program – Mitigation Unit
Nadine White, Land Use Regulation Program
Bureau of Coastal and Land Use Compliance and Enforcement
Wharton Borough Clerk
Wharton Borough Construction Official
Wharton Borough Planning Board
Wharton Borough Environmental Commission